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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP
100 GALLERIA PARKWAY, NW
STE 1750
ATLANTA, GA 30339-5948

EXAMINER

RUDDOCK, ULA CORINNA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1771

DATE MAILED: 08/29/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant N .

09/919,233

Applicant(s)

LATHAM ET AL.

Examiner

Ula C Ruddock

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 31 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 27-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-26, drawn to a fire blocking fabric, classified in class 442, subclass 50+.
 - II. Claims 27-40, drawn to an aircraft seat, classified in class 244, subclass 122R.
 - III. Claims 41-48, drawn to a method of making a fire blocking fabric for use in an aircraft seat, classified in class 28, subclass 103

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful by itself or in a protective garment and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.
3. Inventions III and I & II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be

used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another process, i.e. by meltblowing the flame resistant fibers on the surface of the nonwoven scrim

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Cynthia Lee on August 13, 2002, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 27-48 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

7. The Information Disclosure Statement filed January 24, 2002, has been considered.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 26 reads on a fire-blocking fabric comprising a plurality of flame resistant fibers that are entangled to a nonwoven scrim comprising approximately 0-95% by weight melamine fibers, approximately 0-95% by weight para-aramid fibers, approximately 0-95% by weight meta-aramid fibers, and approximately 0-95% by weight polybenzimidazole fibers. The claim is considered indefinite because all the recited fibers are optional and the claim language is open (i.e. comprising). Therefore, it is unclear what exactly the scrim is made up of. It should be noted that for examination purposes, the Examiner will be interpreting the claim as simply encompassing a nonwoven scrim and a plurality of flame resistant fibers that are entangled to it.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1,2, 4-7, 11 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Bailey et al. (US 4,943,465). Bailey et al. disclose a thermal insulating, high temperature resistant composite in which a network of high temperature-resistant threads are stitched through a high temperature resistant scrim (abstract). It should be noted that the Examiner is equating Bailey's

high temperature-resistant threads to be the same as Applicant's flame resistant fibers. The scrim can be with either a woven or non-woven scrim (col 3, ln 4-5). The scrims can have a weight from 1 to 10 oz/yd² (col 5, ln 57-59). The scrim can also be about 0.005 inches thick (col 7, ln 43-44). The threads and the fibers of the scrim are aramid fibers (claim 9). The threads are needed through the scrim by needlepunching (col 6, ln 13-16). With regard to claim 26, as noted above, the Examiner will be interpreting the claim as simply encompassing a nonwoven scrim and a plurality of flame resistant fibers that are entangled to it; as a result, Bailey et al. anticipate the claim.

Claim Rejections - 35 USC § 102/103

12. Claim 13 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C 103(a) as obvious over Bailey et al. (US 4,943,465), as set forth above. Bailey et al. disclose the claimed invention except for the teaching that the fabric satisfies FAA seat burn requirements. Although Bailey et al. do not explicitly teach that the fabric satisfies FAA seat burn requirements, it is reasonable to presume that satisfying FAA seat burn requirements is inherent to Bailey's composite. Support for said presumption is found in the use of like materials, i.e. high temperature-resistant aramid threads needlepunched through a high temperature resistant aramid scrim. The burden is upon Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In addition, the presently claimed property would obviously have been present once the Bailey et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (US 4,943,465), as set forth above, in view of Radwanski et al. (US 4,950,531). Bailey et al. disclose the claimed invention except for the teaching that the flame resistant fibers are hydroentangled to and with the nonwoven scrim.

Radwanski et al. disclose at least one layer of meltblown fibers hydraulically entangled to a at least one layer of nonwoven net material (abstract). It should be noted that scrims are also known as nets. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Radwanski's hydroentangling method to entangle the scrim and threads of Bailey et al., motivated by the desire to obtain a composite with increased strength and integrity.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (US 4,943,465), as set forth above, in view of Vane (US 4,808,465). Bailey et al. disclose the claimed invention except for the teaching that the flame resistant fibers are chemically bonded to the nonwoven scrim.

Vane discloses a mesh material (col 1, ln 38) adhesively bonded (col 1, ln 52-56) to at least one layer of fibrous material with fire resistant properties (col 1, ln 39-42). It would have been obvious to have used Vane's method of adhesive bonding to entangle the scrim and threads of Bailey et al., motivated by the desire to obtain a composite with increased durability and stiffness.

16. Claims 10,12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (US 4,943,465), as set forth above. Bailey et al. disclose the claimed invention except for the teaching that the scrim comprises approximately 11-60% of the fabric by weight, that the flame resistant fibers have a thickness of approximately 0.031 to approximately 0.128 inches, and that the fabric has a tensile strength of greater than approximately 25 pounds in the machine direction and greater than approximately 30 pounds in the cross-machine direction. It should be noted that increasing the amount of scrim in the fabric composite, increasing the thickness of the flame resistant fibers, and optimizing the tensile strength of the fabric in both the machine direction and cross-machine direction are all result effective variables. For example, the amount of scrim in a fabric composite directly affects the strength of the fabric composite. In addition, increasing the thickness of the flame resistant fibers directly affects the flame resistance of the composite.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the scrim comprise approximately 11-60% of the fabric by weight, to have made the flame resistant fibers have a thickness of approximately 0.031 to approximately 0.128 inches, and to have made the fabric have a tensile strength of greater than approximately 25 pounds in the machine direction and greater than approximately 30 pounds in the cross-machine direction, since it has been held that discovering an optimum value of a result

effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the scrim amount, the thickness of the flame resistant fibers, and the tensile strength, motivated by the desire to obtain a composite having increased strength and flame resistance.

17. Claims 3,15-20, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (US 4,943,465) in view of Ilg et al. (US 5,560,990) and Behnke et al. (US 4,120,914). Bailey et al. disclose a thermal insulating, high temperature resistant composite in which a network of high temperature-resistant threads are stitched through a high temperature resistant scrim (abstract). It should be noted that the Examiner is equating Bailey's high temperature-resistant threads to be the same as Applicant's flame resistant fibers. The scrim can be with either a woven or non-woven scrim (col 3, ln 4-5). With regard to claims 18 and 19, the scrims can have a weight from 1 to 10 oz/yd² (col 5, ln 57-59). With regard to claim 24, the scrim can also be about 0.005 inches thick (col 7, ln 43-44). The threads and the fibers of the scrim can be aramid fibers (claim 9). With regard to claim 20, the threads are needled through the scrim by needlepunching (col 6, ln 13-16). Bailey et al. fail to disclose that the nonwoven scrim comprises approximately 50% melamine fibers, approximately 25% para-aramid fibers, and approximately 25% meta-aramid fibers.

Ilg et al. (US 5,560,990) disclose fiber blends of melamine resin fibers and aramid fibers (abstract) that are useful for flame and heat resistance (col 1, ln 12). The fiber blends consist essentially of 5-95 parts by weight of melamine resin fibers and 95-5 parts by weight of aramid fibers (claim 1). Behnke et al. (US 4,120,914) disclose an aromatic polyamide fiber blend for

protective clothing that comprises 45-55 weight percent poly(m-phenylene isophthalamide), i.e. meta-aramids and 45-55 weight percent poly(p-phenylene terephthalamide), i.e. para-aramids (abstract). It would have been obvious to one having ordinary skill in the art to have used the melamine and aramid fiber blend of Ilg et al. in the nonwoven scrim of Bailey et al., motivated by the desire to obtain a composite with increased strength and abrasion resistance. Furthermore, it would have been obvious to have used the meta-aramid and para-aramid fiber blend taught by Behnke et al. in the nonwoven scrim of Bailey et al. and Ilg et al., motivated by the desire to obtain a composite with a balance of good aesthetic properties and low shrinkage at high temperatures.

Furthermore, it should be noted that while Ilg et al. disclose fiber blends comprising 5-95 parts by weight of melamine resin fibers and 95-5 parts by weight of aramid fibers and Behnke et al. disclose 45-55 weight percent meta-aramids and 45-55 weight percent para-aramids, they fail to explicitly teach a nonwoven scrim comprising approximately 50% melamine fibers, approximately 25% para-aramid fibers, and approximately 25% meta-aramid fibers. It would have been obvious to one having ordinary skill in the art to have made the nonwoven scrim of Bailey et al, Ilg et al., and Behnke et al. comprise a fiber blend of approximately 50% melamine fibers and approximately 50% aramid fibers (i.e. 25% para-aramid and 25% meta-aramid), motivated by the desire to obtain a composite with a balance of good aesthetic properties, low shrinkage at high temperatures, increased strength, and increased flame and abrasion resistance.

With regard to claim 16, Bailey et al, Ilg et al., and Behnke et al. disclose the claimed invention except for the teaching that the fabric satisfies FAA seat burn requirements. Although Bailey et al., Ilg et al., Behnke et al. do not explicitly teach that the fabric satisfies FAA seat burn

requirements, it is reasonable to presume that satisfying FAA seat burn requirements is intrinsic to the composite of Bailey et al, Ilg et al., and Behnke et al. Support for said presumption is found in the use of like materials, i.e. high temperature-resistant aramid threads needlepunched through a high temperature resistant melamine and aramid scrim. The burden is upon Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In addition, the presently claimed property would obviously have been present once the Bailey et al., Ilg et al., and Behnke et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

With regard to claims 17, 23, and 25, Bailey et al., Ilg et al., and Behnke et al. disclose the claimed invention except for the teaching that the scrim comprises approximately 11-60% of the fabric by weight, that the flame resistant fibers have a thickness of approximately 0.031 to approximately 0.128 inches, and that the fabric has a tensile strength of greater than approximately 25 pounds in the machine direction and greater than approximately 30 pounds in the cross-machine direction. It should be noted that increasing the amount of scrim in the fabric composite, increasing the thickness of the flame resistant fibers, and optimizing the tensile strength of the fabric in both the machine direction and cross-machine direction are all result effective variables. For example, the amount of scrim in a fabric composite directly affects the strength of the fabric composite. In addition, increasing the thickness of the flame resistant fibers directly affects the flame resistance of the composite. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the scrim comprise approximately 11-60% of the fabric by weight, to have made the flame resistant fibers have a thickness of approximately 0.031 to approximately 0.128 inches, and to have made the fabric have a tensile

strength of greater than approximately 25 pounds in the machine direction and greater than approximately 30 pounds in the cross-machine direction, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the scrim amount, the thickness of the flame resistant fibers, and the tensile strength, motivated by the desire to obtain a composite having increased strength and flame resistance.

18. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al., Ilg et al., and Behnke et al. as applied to claims 15-20 above, and further in view of Vane (US 4,808,465). Bailey et al., Ilg et al., and Behnke et al. disclose the claimed invention except for the teaching that the flame resistant fibers are chemically bonded to the nonwoven scrim. Vane discloses a mesh material (col 1, ln 38) adhesively bonded (col 1, ln 52-56) to at least one layer of fibrous material with fire resistant properties (col 1, ln 39-42). It would have been obvious to have used Vane's method of adhesive bonding to entangle the scrim and threads of Bailey et al., Ilg et al., and Behnke et al. motivated by the desire to obtain a composite with increased durability and stiffness.

19. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al., Ilg et al., and Behnke et al. as applied to claims 15-20 above, and further in view of Radwanski et al. (US 4,950,531). Bailey et al., Ilg et al., and Behnke et al. disclose the claimed invention except for the teaching that the flame resistant fibers are hydroentangled to and with the nonwoven scrim.

Radwanski et al. disclose at least one layer of meltblown fibers hydraulically entangled to a

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at least one layer of nonwoven net material (abstract). It should be noted that scrims are also known as nets. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Radwanski's hydroentangling method to entangle the scrim and threads of Bailey et al., Ilg et al., and Behnke et al. motivated by the desire to obtain a composite with increased strength and integrity.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C Ruddock whose telephone number is 703-305-0066. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

UCR *UCR*
August 26, 2002

Ula Ruddock